Pheasant 4-H Project Book

Pondera County

Activities

Chapter 1: What are Pheasants?

1. Wild Birds of Montana

There are many different species of wild birds in Montana, each with their own set of adaptations to live where they do. Some wild birds prefer to live in grasslands, some prefer sagebrush, and some prefer mountains. Fill out the below chart with information for each of the wild bird species common to Montana. Note what it looks like, where you may find each bird, what habitat they prefer, and adaptations that make it possible to live where they do.

Species	Identification	Area They Live	Habitat	Adaptations
Ring-Necked Pheasant				
Sage Grouse				
Blue Grouse				
Spruce Grouse				
White-Tailed Ptarmigan				
Hungarian Partridge				
Sharp-Tailed Grouse				
Chukar Partridge				
Ruffed Grouse				
Merriam's Turkey				

2. Pheasant Facts

Using multiple information sources, make a list of fun facts about Ring-Necked Pheasants. Compare your list with another member's list of facts and teach each other a little about pheasants!

My List	Friend's List
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

3. Wild Bird Road Trip!

Next time your family goes on a road trip, bring along the chart you filled out in activity 1. Using that information, see how many wild birds you can spot and write down where you found them! Think about why they live where they do and where you might have to look to find them.

If you're going somewhere out of state, research what wild birds you might find there and then look for them!

4. Bird Twins

Make a display about bird species in Montana that are similar to ring-necked pheasants and present it to your club. Include why the birds may get confused and easy ways to tell them apart.

5. More Than Just Ring-Necked Pheasants

The Ring-necked pheasant is just one of the many pheasant species around the world. See how many species of pheasant you can find online and then match the description of the bird on the right to the species name on the left.

____ Ring-Necked Pheasant	A. Red legs and facial skin. Males are mostly blue-black and females are brown.
____ Blood Pheasant	B. Male's tails can be 31 inches long. Males have black and silver head, gray tail, and multi-colored body feathers.
____ Blue-Eared Pheasant	C. Male feathers are a mix of metallic colors. Both males and females have a crest on the top of their head blue skin around their eyes.
____ Edward's Pheasant	D. Males have vivid red coloring on breast, throat, and forehead. Both males and females have a crimson ring around their eyes.
____ Golden Pheasant	E. Males are chestnut brown with a greyish brown head and metallic blue neck. Females are chestnut brown with a white throat.
____ Lady Amherst's Pheasant	F. Males have white ring around neck with a green head.
____ Monal Pheasants	G. Males have a long purple-black crest on their head and a long, metallic colored, curved tail. Both males and females have red feet and legs.
____ Hume's Pheasant	H. Males are mostly white with a black crest. Females are olive brown with a black tipped crest.
____Siamese Firebacks	I. Large pheasants that are up to 3.1 feet long. It has striking scarlet facial skin and long white ear feathers.
____Silver Pheasants	J. Males have a golden rump, bright red body, scarlet breast, and green upper back.

Chapter 2: Pheasant Life Cycle

1. How Old is That Chick?

It can be difficult to figure out how old a chick is if you're just guessing. Luckily, there is an easy way to tell how old your chicks are by looking at their feathers. On the tip of pheasants' wings there are 10 long wing weathers called **primaries**. The primaries are numbered 1 through 10 with 1 being the outermost feather. In their first year of life, pheasants grow 2 sets of primaries. Just like people have baby teeth that fall out to make room for adult teeth, the juvenile primaries fall out to make room for post-juvenile primaries. The below chart will help you age chicks up to 10 weeks of age.

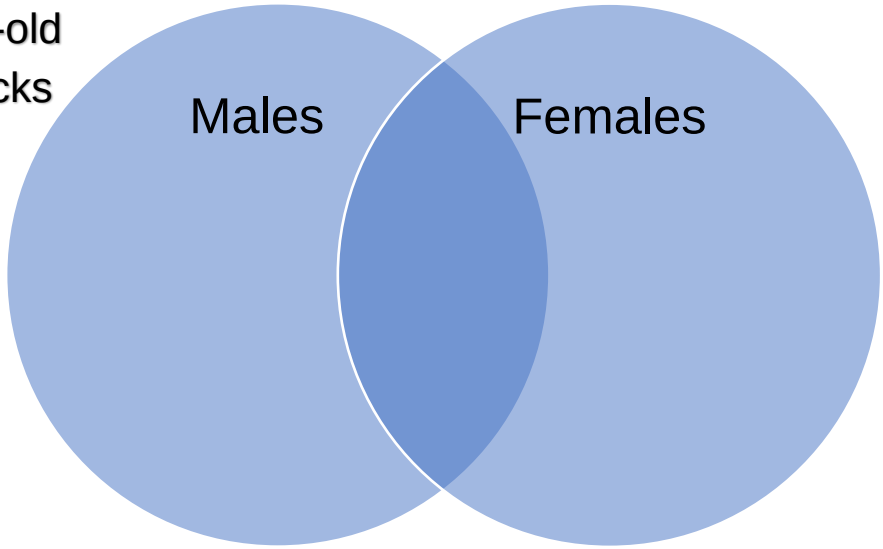
Age	Feather Description
1-2 days	Primary wing feathers 10-4 are in place, mostly covered in down, egg tooth still on beak.
1 week	Secondary wing feathers start growing, down still covers most of body
2 weeks	Body feathers start on breast, rump, back, and tail
3 weeks	Feathers are everywhere except head, neck, and belly
4 weeks	Feathers start on top of head, #10 primary lost
5 weeks	Very little down remaining, #9 primary lost
6 weeks	Head is covered in small feathers that look like pinfeathers, #8 primary lost
7 weeks	Roosters start to turn red, #7 primary lost
8 weeks	Rooster red color deepens, #6 primary lost
9 weeks	First greenish color on rooster neck, #5 primary lost
10 weeks	Central tail feathers start protruding on roosters, #4 primary lost

Take pictures of your birds once a day for the first two days you have them and then once a week for 10 weeks. Look at the feathers all over their body and their primaries. Make a display with your photos that shows the development of body feathers and molting of primaries as the chicks age.

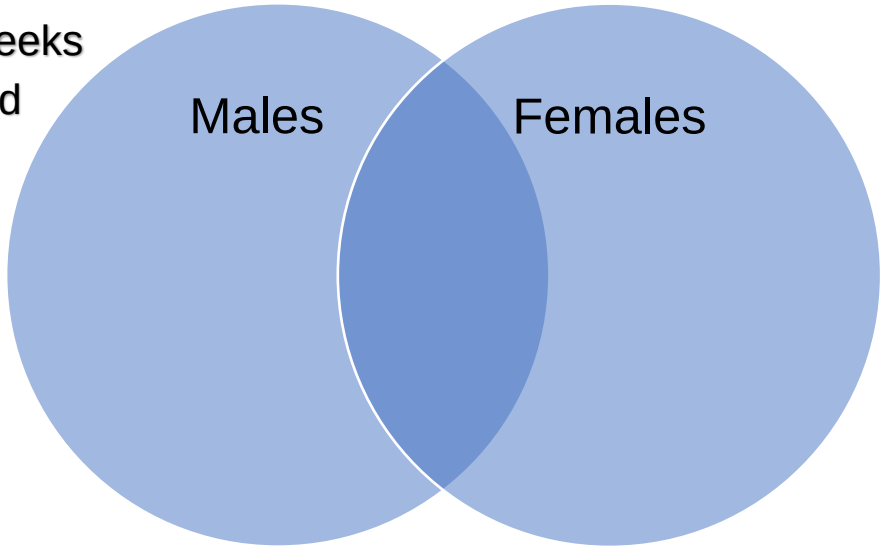
2. Males versus Females

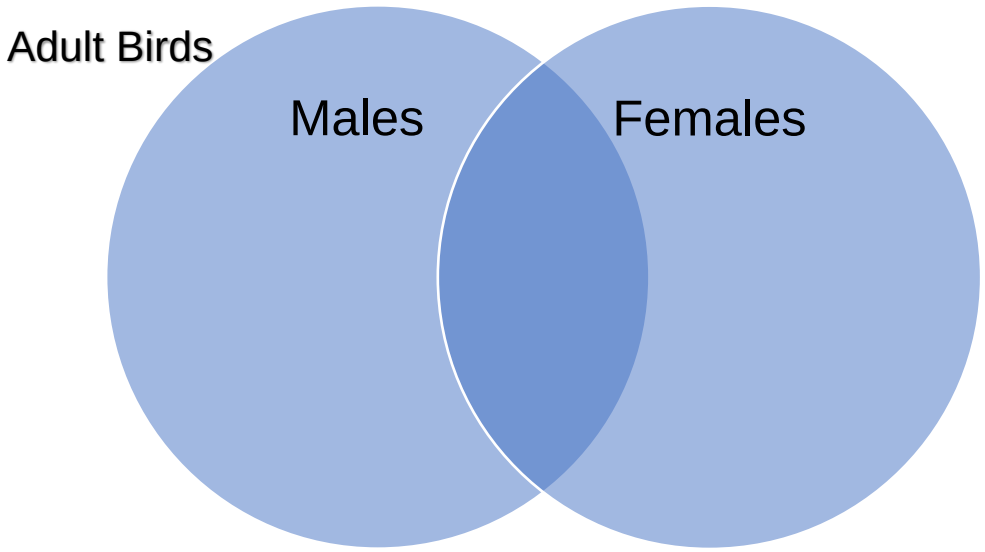
Being able to tell male pheasants apart from female pheasants is an important skill. There are multiple ways you can tell them apart, without being too invasive. Find information on sexing pheasants at different ages and then fill out the charts below with differences and similarities of pheasants at 1 day old, 12 weeks old, and adult birds.

Day-old Chicks



12 Weeks Old





3. Pheasant Food

All animals need water, energy, and protein to survive. When we raise livestock or poultry, we can develop a ration to meet all their needs using a variety of ingredients. In the wild, pheasants need to figure out how to meet their needs without much human intervention.

Find a spot where you know pheasants like to live. Look around and see if you can find some things that pheasants might like to eat. Once you find some pheasant food, think about whether each thing would be a source of energy or a source of protein for pheasants and write it in the appropriate column. An example of each has been written in for you.

Energy	Protein
Spilled wheat from harvest	Grasshoppers

4. Feeding Chicks

Chick diets are about 90% insects for the first two weeks of their lives. During this time, pheasants are growing faster than they ever will and their protein requirement is 27% of their diet. Researchers have found that pheasant chicks eat at least 22 different species of insects! Chicks are more likely to survive if they eat more insects because they can get enough protein to grow. Because hens know their chicks need insects, they take the chicks to areas where there will be lots of insects to eat.

Research which Montana plants attract insects. Once you have a list of plants, look around outside to see which ones you can find. Dry 3 of these plants, attach them to this page, and write the name of the plant beside it.

5. Nesting, Part 1

Pheasant hens will begin laying eggs in late April but won't build a nest until its warm enough outside for the eggs to develop and to keep chicks alive. Hens will lay one egg a day and will not start incubating her eggs until she has a full nest of 12-14 eggs. For almost 2 weeks, her eggs will not be incubated or protected so she needs to build her nest somewhere where they can stay warm enough and hidden while she's out looking for food. Once she has laid her last egg, she will sit on the eggs for 23 hours a day for 23 days. She will only leave to find food for an hour each day.

Think about ways that a hen could hide her nest to protect her eggs from predators and severe weather. If you were a hen, where would you put your nest? What would you do to keep it hidden? Write down some of your ideas below, then discuss with a friend to compare

My List	Friend's List
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

6. Nesting, Part 2

In part 1, you learned that a hen will stay with her eggs for at least 23 hours a day for 23 days to keep them the right temperature. If the eggs get below 35°F or above 90°F the embryos will die.

Take 3 store-bought chicken eggs, put one in the freezer overnight, boil one for 3 minutes, and leave one on the counter. After your eggs have frozen/boiled, crack each one into a separate dish and look at the consistency of the egg white and yolk. Make notes about what each one looks like below. Think about whether a chick would be able to develop in an egg that looks like that.

Room Temperature Egg	Frozen Egg	Boiled Egg

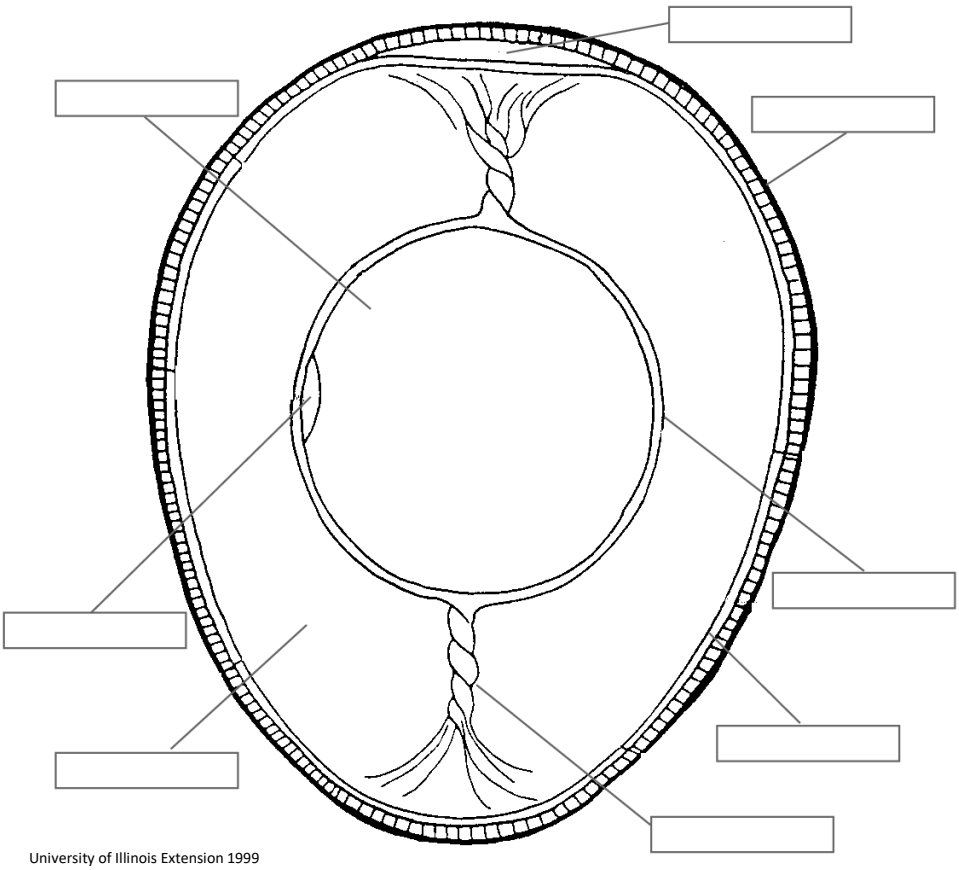
Chapter 3: Egg Development

1. Parts of An Egg

There are several parts inside an egg that make it possibly for an embryo to develop into a chick. Below is a list of these important parts and what they do.

Shell	The outer covering of an egg that protects eggs from bacterial contamination.
Shell Membranes	Membranes just inside the shell that provide more protection to the developing chick.
Albumen	Whitish, watery substance that surrounds the yolk and provides the developing chick with riboflavin and protein.
Yolk	Yellow substance that provides the chick with food during its development and the first day of its life.
Air Cell	Air pocket that forms between inner and outer shell membranes to replace moisture that the egg loses.
Vitelline Membrane	The clear seal that holds the yolk in place.
Chalaza	Structures made out of albumen that are twisted at each end of the yolk and hold the yolk in the center of the shell.
Germinal Disc	The spot on the yolk that is fertilized to form a chick.

Carefully crack a store-bought egg into a plate and see which of these parts you can find and label the diagram below. Think about how each of these parts of the egg helps the developing chick. What would happen if one of these parts was damaged?



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2. What Makes a Shell?

Make chalk out of eggshells using the following recipe. Once you've made the chalk, try it out, does it work like the kind of chalk you'd buy from a store? Think about what makes the egg shells a good ingredient for making chalk.

What is the main mineral in egg shells? _____

What is the main mineral in store-bought chalk? _____

Why does breaking down egg shells work or not work to make chalk?

_____
_____
_____
_____
_____

What could you do differently to make this recipe work better?

_____
_____
_____
_____
_____

Egg Shell Chalk

Materials:

- 6 egg shells
- Flour
- Hot water
- Paper towels or soap molds
- Food coloring
- Bowl
- Spoon
- Measuring spoons

Directions:

Break 6 eggs in a bowl. Discard the eggs, clean out the shells and then wash and thoroughly dry the empty eggshells to make eggshell chalk.

Break up the eggshells and place in a bowl.

Grind the eggshells into small pieces with the back of a spoon until the shells become a fine powder. A mortar and pestle works great for this process.

Mix together 1 tsp. of flour and 1 tsp. of very hot water. Add 1 Tbsp. of the ground egg shell powder and mix it together until it is a thick paste. This amount will make one piece of chalk.

Add one or two drops of food coloring to the paste if you want your chalk to be colored. If you want white chalk, just don't add any food coloring.

Shape the paste into chalk sticks and roll them up in a paper towel, wrapping them tightly.

Allow the sticks of chalk to dry for 3 days. Your eggshell chalk will then be ready to use.

3. What Happens in an egg?

It takes about 23 days for embryos to develop into pheasant chicks. During that 23 days, a lot happens to turn the embryos into chicks. Below is a list of things that will happen during the 23 days of incubation, order the events from the first thing to happen to the last.

	Yolk sac draws into the body.
	Beak starts to harden.
	Head begins to form.
	Feathers begin to form.
	Veins and heart begin to form.
	Embryo begins to look bird-like.
	Chick hatches.
	Toes are fully formed.
	Beak and egg tooth begin to form.
	Beak, wings, and legs begin to form.
	Toes are fully formed, and down feathers are visible.
	Tongue begins to form.
	Claws and beak become firm.
	Proventriculus and gizzard are formed.
	Feathers begin to form.

4. How do the Chicks Get Out?

Eggs use a special growth on their beak called an ‘egg tooth’ to break their shell open. The egg tooth will dry and fall off within the first 2 days of their life. Watch some chicks hatch out of their shells. Below, note how they open the egg and how they get out. How long does it take them to get out of their shell? Why is it important for them to be able to get out of their shell as quickly as possible?

Chapter 4: Pen Rearing Pheasants

1. Brooding Chicks

For the first 2 weeks of a chick's life they are very fragile and need protection. When they are this young, they can't regulate their body temperature and they are growing very quickly. Below are three things that you need to provide the chicks with to keep them healthy while they are in the brooder area. Fill in the blank space next to it with what you can do to meet these requirements.

Requirement	**What You Can Do**
High Temperature (100°F)	
High Protein Feed	
Safety from Predators and Disease	

2. Pen Requirements

Pheasants are wild birds by nature and don't like living inside, they need time to get used to being outside before being released. Their outdoor pen should include plenty of space for the birds to fly and run, shelter from weather, easily accessible feed and water. Using this blank space, design the perfect flight pen. Make sure to label what you are using for shelter, where you would place the shelter, how big the pen is, and where you would put food and water.

3. Cannibalism

Pheasants are known for their cannibalistic tendencies when you pen-rear them. This is seen by feather-pecking. Luckily, there are several things you can do to limit the amount of cannibalism that happens in your pen. Investigate 3 methods you could use to limit feather pecking in your flock. Fill in the chart below with your three option and reasons why they work and limitations they may have in their use.

Method	Reasons It Works	Limitations to Use

4. Disease

Just like people, pheasants can get sick any time. It's important to watch birds closely to prevent any disease outbreaks. Below are some symptoms of common diseases that may occur in your pheasants. Match the disease from the list of possible disease to the symptoms. Once you've done that, look up some ways you can prevent your flock from getting the disease.

Disease	Symptoms	Prevention
	Birds will be weak, have blood in diarrhea, grow slowly, and eventually die.	
	Birds can't use their wings or legs normally, can't hold their heads up, and eventually die.	
	Birds sneeze, have watery eyes, nasal discharge, and swollen eyes.	
	Birds gasp and cough, will have greenish, watery diarrhea, and have swelling around the eyes.	
	Birds' feathers will be in poor shape, there will be swelling around the body, birds will wander around in a stupor and eventually die.	

Possible diseases: Avian Influenza, Botulism, Coccidiosis, Mycoplasmosis, Newcastle Disease

5. Getting Started

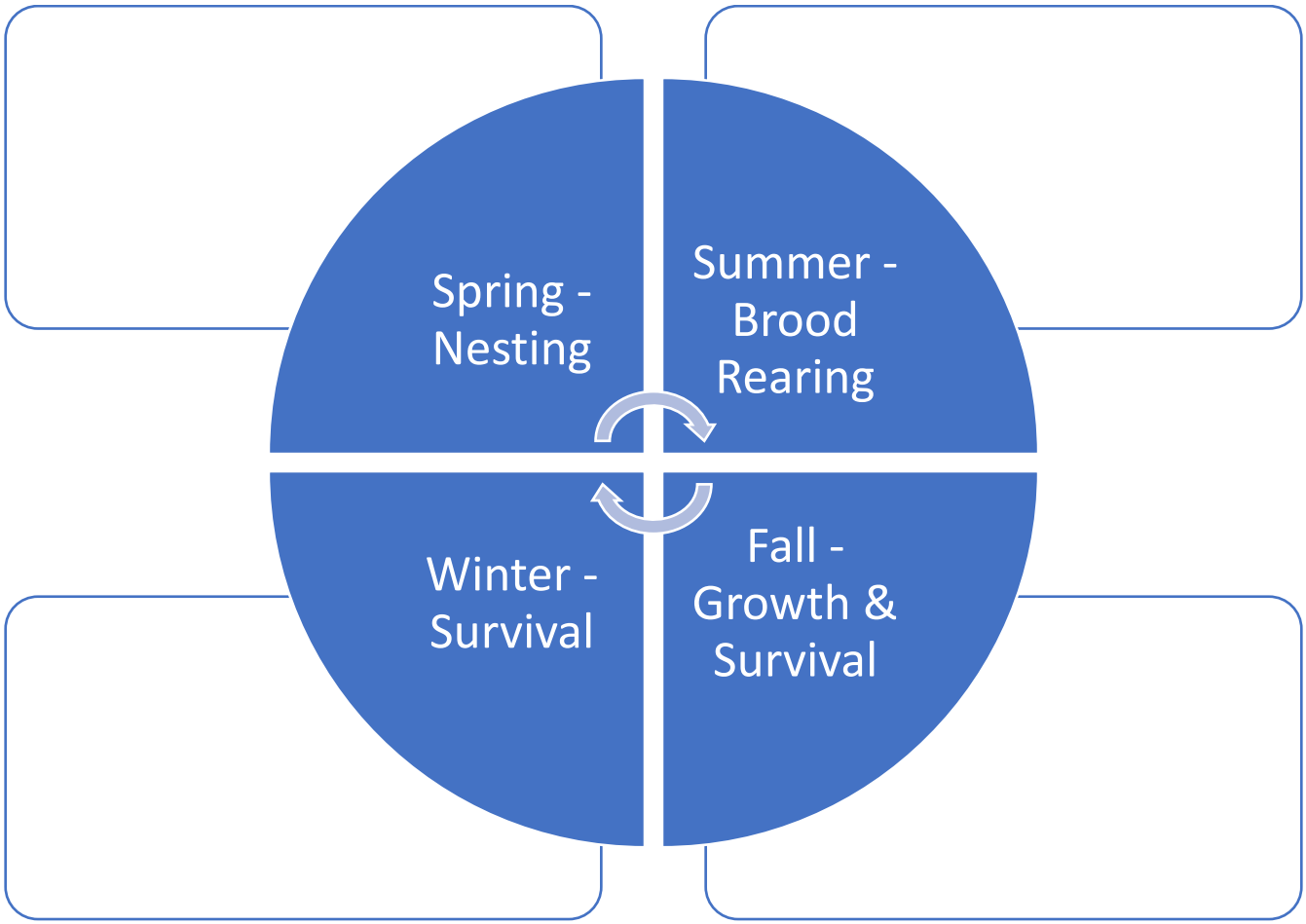
As you know, there are a lot of things that need to be done to raise pheasants properly. There are daily chores, weekly chores, and monthly chores. Think about everything you do to raise your pheasants. Below, fill out a guide that would help a new pheasant raiser know what they need to do. Include daily chores, weekly chores, and one-time chores for the pheasants during brooding and after they are moved to their outdoor pen.

	Brooding	**Outdoor Pen**
Daily Chores		
Weekly Chores		
One-Time Chores		

Chapter 5: Wild Pheasant Habitat

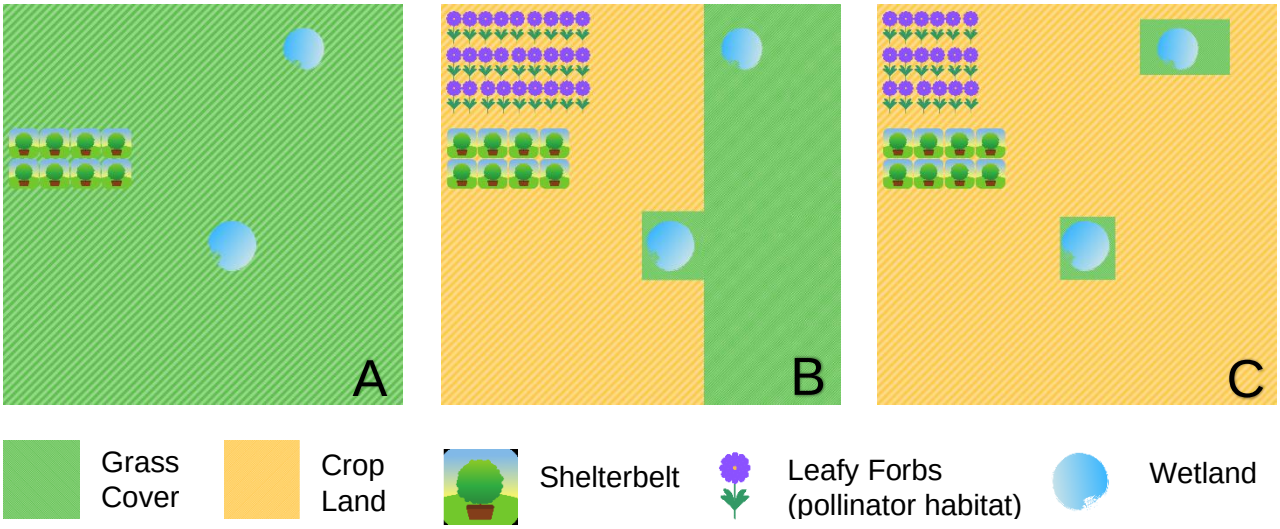
1. Year-Round Habitat

Habitat requirements for Ring-Necked Pheasants changes throughout the year, depending what stage of life cycle they are in. Fill in the below chart with what type of habitat would be best for each time of year. Then think about what type of area would meet all these needs and provide good habitat year-round for pheasants.



2. Suitable Habitat

Pheasants have many different requirements to thrive in an area. They need nesting cover, brood rearing cover, protection from weather, food, and water. Below are three examples of areas where a pheasant might live. Rank them in order from best to worst pheasant habitat and explain why it is or isn't good habitat.



Best Habitat: _____

Middle Habitat: _____

Worst Habitat: _____

Why did you order them the way you did?

_____
_____
_____
_____
_____
_____
_____
_____

3. Make Your Own Pheasant Habitat

Using what you have learned about what makes good pheasant habitat, make a model of a piece of land that would be suitable habitat for pheasants. You can base it on a piece of land that you know pheasants live in or you can use your imagination! Bring your model to a club meeting or the fair and tell other 4-H members about the important pieces of pheasant habitat.

4. Improving Habitat

Maintaining habitat is important for wild pheasants, but we need to be mindful of crop production. Below is a list of things farmers could do to manage their cropland to improve pheasant habitat. Speak to a local farmer to find out what things they are already doing, what they would be willing to do and what they don't think is practical on their farm.

a. Leave a grassland buffer around wetland areas to provide cover for pheasants.
b. Avoid fall tillage so that weed seeds and waste grain on the ground can provide food for wildlife.
c. Avoid burning cattails; cattails make great winter habitat for pheasants.
d. Leave some rows of crop standing in the fall to provide food and cover for pheasants going into winter.
e. Consider planting food plots within a quarter mile of winter cover to provide wildlife with food year-round. Food plots can be half an acre to 5 acres and include cereals, grasses, oilseeds, pulses, or other crops.
f. Use methods other than pesticide as the primary method of weed and insect control. Pesticide drift can kill beneficial plants and insects outside of the crop that pheasants eat.
g. Include plants like flax, canola, sunflowers, alfalfa, or corn in crop rotations to provide cover for pheasants.
h. Consider planting cover crops instead of fallowing to provide food and cover for wildlife.